

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
24 July 2003 (24.07.2003)

PCT

(10) International Publication Number  
**WO 03/060534 A3**

(51) International Patent Classification<sup>7</sup>: **G01R 31/3187**,  
31/3185

[DE/DE]; c/o Philips Intellectual Property & Standards  
GmbH, Weissshausstr. 2, 52066 Aachen (DE).

(21) International Application Number: PCT/IB03/00053

(74) Agent: **VOLMER, Georg**; Philips Intellectual Property &  
Standards GmbH, Weissshausstr. 2, 52066 Aachen (DE).

(22) International Filing Date: 14 January 2003 (14.01.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
102 01 554.6 17 January 2002 (17.01.2002) DE

(71) Applicant (for DE only): **PHILIPS INTELLECTUAL  
PROPERTY & STANDARDS GMBH** [DE/DE]; Stein-  
damm 94, 20099 Hamburg (DE).

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU,  
AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU,  
CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,  
GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC,  
LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW,  
MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE,  
SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ,  
VC, VN, YU, ZA, ZM, ZW.

(71) Applicant (for all designated States except DE, US):  
**KONINKLIJKE PHILIPS ELECTRONICS N.V.**  
[NL/NL]; Groenewoudseweg 1, NL-5621 BA Eindhoven  
(NL).

(84) Designated States (*regional*): ARIPO patent (GH, GM,  
KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW),  
Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),  
European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE,  
ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, SE, SI,  
SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN,  
GQ, GW, ML, MR, NE, SN, TD, TG).

(72) Inventor; and

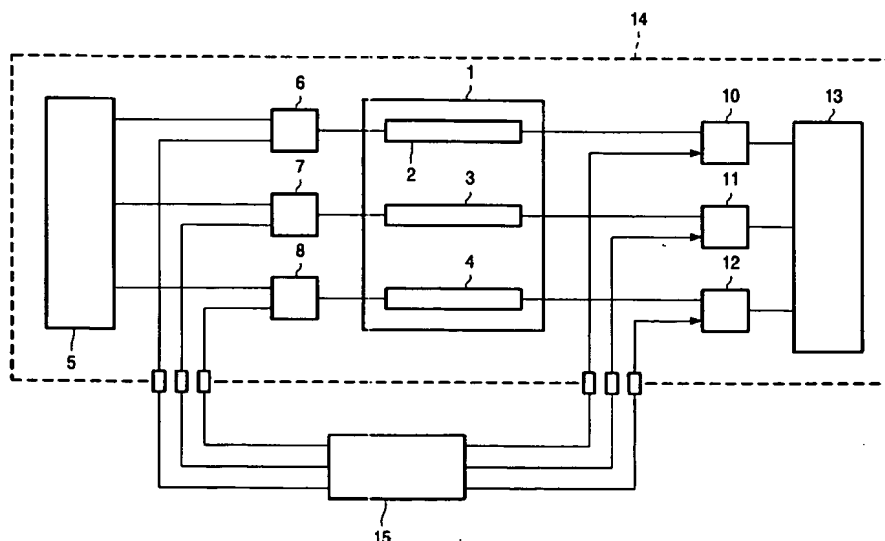
Published:

(75) Inventor/Applicant (for US only): **HAPKE, Friedrich**

— with international search report

[Continued on next page]

(54) Title: INTEGRATED CIRCUIT WITH SELF-TESTING CIRCUIT



(57) Abstract: An integrated circuit (14) with an application circuit (1) to be tested and a self-testing circuit (5-13), which is provided for testing the application circuit (1) and generates pseudorandom test patterns, which can be transformed, by means of first logic gates (6, 7, 8) and signals externally fed to said gates, into deterministic test vectors, which are fed to the application circuit (1) for testing purposes, wherein the output signals occurring through the application circuit (1) as a function of the test patterns are evaluated by means of a signature register (13), wherein, by means of second logic gates (10, 11, 12) and signals fed to said gates, those bits of the output signals of the application circuit (1) which, due to the circuit structure of application circuit (1), have undefined states, are blocked during testing.

WO 03/060534 A3



**(88) Date of publication of the international search report:**

13 November 2003

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

## INTERNATIONAL SEARCH REPORT

Int. Application No

PCT/IB 03/00053

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 G01R31/3187 G01R31/3185

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 G01R

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X,P	EP 1 178 322 A (PHILIPS CORP INTELLECTUAL PTY ;KONINKL PHILIPS ELECTRONICS NV (NL)) 6 February 2002 (2002-02-06) the whole document --- -/--	1-5

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

## \* Special categories of cited documents :

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
- \*E\* earlier document but published on or after the International filing date
- \*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- \*O\* document referring to an oral disclosure, use, exhibition or other means
- \*P\* document published prior to the international filing date but later than the priority date claimed

\*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

\*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

\*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

\*G\* document member of the same patent family

Date of the actual completion of the international search

4 August 2003

Date of mailing of the international search report

12/08/2003

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2  
NL - 2280 HV Rijswijk  
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,  
Fax: (+31-70) 340-3016

Authorized officer

Hijazi, A

## INTERNATIONAL SEARCH REPORT

Inter I Application No

PCT/IB 03/00053

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	KIEFER G ET AL: "USING BIST CONTROL FOR PATTERN GENERATION" PROCEEDINGS OF THE INTERNATIONAL TEST CONFERENCE. ITC '97. WASHINGTON, DC, NOV. 1 - 6, 1997, INTERNATIONAL TEST CONFERENCE, NEW YORK, NY: IEEE, US, vol. CONF. 28, 1 November 1997 (1997-11-01), pages 347-355, XP000800332 ISBN: 0-7803-4210-0 cited in the application page 347, column 2 page 348, column 2 -page 349, column 1; figures 4,5 ---	1,4,5
Y	WO 01 38889 A (MENTOR GRAPHICS CORP) 31 May 2001 (2001-05-31) page 6, line 3 - line 7 page 8, line 13 -page 11, line 18; figures 3-5,7-9 ---	1,4,5
A	EP 0 780 767 A (AT & T CORP) 25 June 1997 (1997-06-25) column 2, line 38 - line 40 column 5, line 36 - line 45; figure 2 -----	1

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/IB 03/00053

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
EP 1178322	A	06-02-2002	DE 10038327 A1	14-02-2002
			EP 1178322 A2	06-02-2002
			JP 2002122639 A	26-04-2002
			US 2002069387 A1	06-06-2002
WO 0138889	A	31-05-2001	US 6557129 B1	29-04-2003
			EP 1256008 A1	13-11-2002
			WO 0138889 A1	31-05-2001
			US 2003115521 A1	19-06-2003
EP 0780767	A	25-06-1997	US 5774477 A	30-06-1998
			CA 2192867 A1	23-06-1997
			EP 0780767 A2	25-06-1997
			JP 9189749 A	22-07-1997